



Planetary Data System

Geosciences Node Report

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**MC Face-to-Face Meeting
Columbia, MD
August 28-29, 2012**

Overview

- Active Mission Status
 - Odyssey, MER, Mars Express, MESSENGER, MRO, LRO
- Archives In Development
 - MSL (!)
 - GRAIL
- Tools Update – What's New
 - ODE, Analyst's Notebooks, Virtual Astronaut, Spectral Library
- PDS4 Work
 - Testing
 - Missions In the Pipeline to Use PDS4
 - Data Migration Plans
 - Plans for Tools and Services

Active Missions

- **Odyssey** – Release 41, Oct. 1, 2012, 5 data sets, no problems.
- **MER** – Release 33, Aug. 28, 2012, 14 data sets, only problem is chronically late delivery of derived products by a couple of providers.
- **Mars Express** – intermittent releases, 32 data sets, no problems, except no OMEGA delivery since early 2011.
- **MRO** – Release 22, Sept. 1, 2012, 11 data sets, no problems.
- **LRO** – Release 11, Sept. 15, 2012, 9 data sets, no problems.
- Geo also archives 13 data sets from the **MESSENGER** mission, led by PPI. Release 8, Sept. 7, 2012, no problems.
 - Reviews of new derived data sets for GRS, NS, MLA, and Radio Science are now in lien resolution. Data to be released in March 2013.

Archives In Development: MSL

- Yes, MSL is in operations, but its archives are still in development.
- Of 14 EDR and RDR peer reviews mission-wide, 2 are complete, 7 are in lien resolution, 1 is about to start, and 4 are not yet review-ready.
- Two of three planned end-to-end delivery tests have been conducted. In general RDR deliveries from teams went well, but EDR deliveries from OPGS are complicated; some tests are still incomplete.
- E2E Test 3 is November 13-14, 2012.
- First delivery to PDS is February 6, 2013. First release is February 27, 2013.
- Issues and concerns:
 - Now that team members and OPGS are involved in operations they will have little time to spend on archive development. On the other hand they now see Ray face to face in operations every day so he can make direct contacts to get things done.

Archives In Development: GRAIL

- GRAIL primary mission was Mar. 8 – May 29, 2012. An extended mission runs Aug. 30 – Dec. 3, 2012.
- EDR data:
 - Peer review is Aug. 31 – Oct. 1, 2012, of the actual archive, not samples.
 - Release 1, EDR data only, is Dec. 13, 2012.
- RDR data:
 - Peer review June 24 – July 26, 2013.
 - Release 2, RDR data only, is Oct. 11, 2013.
- Schedule for release of extended mission data is TBD.
- Issues and Concerns:
 - This is not a typical radio science data set; the EDRs include many new product types, some of which baffle even Dick Simpson.
 - The team has been consistently late meeting milestones. If the EDR review turns out badly, we expect even more delays during lien resolution. The December release may be at risk.

Tools Update: What's New

- ODE
 - Recently added Lunar Orbiter, Viking Orbiter, Odyssey GRS, Odyssey THEMIS, and Chandrayaan-1 Mini-RF.
 - Based on user feedback, developed and completed ODE Venus peer review using Magellan data, for release this fall.
 - Working on method for populating ODE geometry data base computed from SPICE kernels rather than from product labels. Prototype by using MESSENGER MDIS Narrow Angle image data set.
 - Plans: Integrate Ames table browser and product relationship tools; improve granular-level searches to include more data sets and more output formats.
- Analyst's Notebooks
 - Developing the MSL Analyst's Notebook. Science Team has requested a team version for tactical use. This grants us early access to data and documents as well as critical feedback for development and testing.
 - Updating search functions and adding shopping-cart ordering function to MER Analyst's Notebook.
 - Released Opportunity Virtual Astronaut for Santa Maria crater traverses and in-situ measurement locations.

Tools Update: What's New

Virtual Astronaut

- VA is a virtual 3D environment that allows users to observe the Martian landscape and interact with a rover, as if they were on the surface.
- Peer review is complete.
- Version 1.0 was released August 24, 2012. <http://va.rsl.wustl.edu>. Requires Unity browser plug-in and a good graphics card.



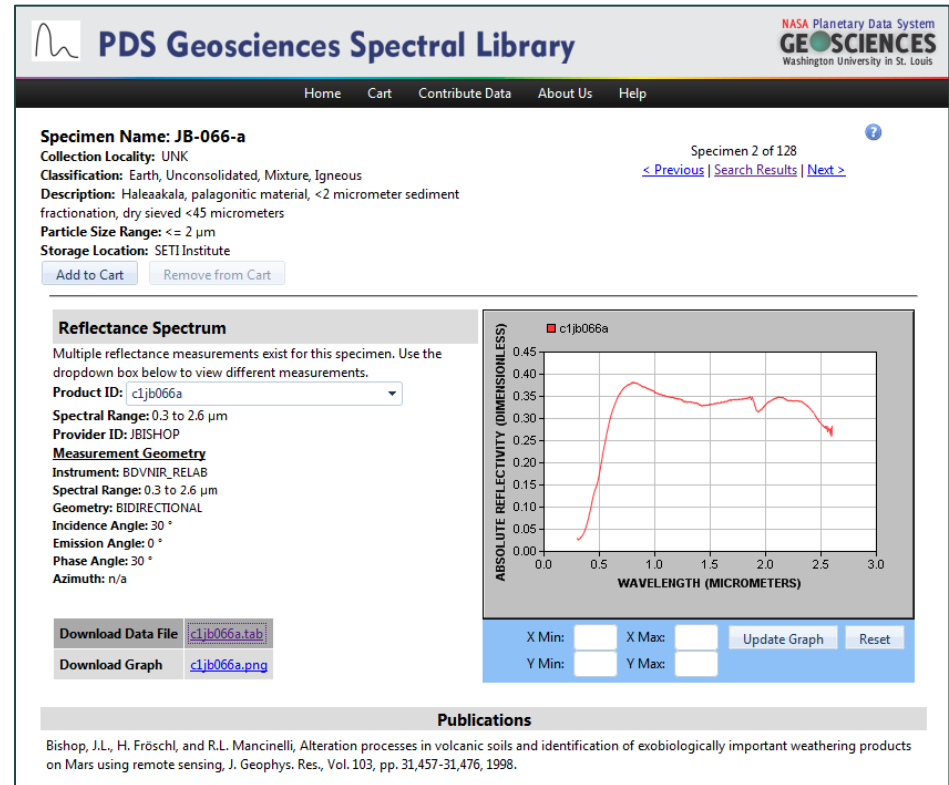
August 28-29, 2012

Tools Update: What's New

Spectral Library Web Interface

- Searches spectral libraries by keyword, sample classification, data type, or data provider
- Will incorporate additional libraries submitted to Geo, with support for reflectance, emission, Raman, X-ray fluorescence, X-ray diffraction, MSL LIBS, and microprobe data
- Peer review is complete. Version 1.0 will be released August 28, 2012.

<http://speclib.rsl.wustl.edu/>



PDS4 Work: Testing

- Build 1
 - Generated individual sample product labels.
- Build 2
 - Generated product labels for MER images, binary table, and delimited tables.
 - Generated example document label for the RAT EDR SIS.
 - Generated bundle and collection labels for MER RAT data
- Build 3
 - Build complete bundle and collections for many products, using MER RAT example
- Concerns
 - Have not yet dealt with local data dictionary
 - Have not yet dealt with map-projected data

PDS4 Work: Missions In the Pipeline

- InSight, the recently selected Discovery mission
 - Lander to explore interior of Mars
 - Launch March 2016, landing September 2016, primary mission 1 Mars year (about 2 Earth years)
 - Seismometer, context cameras, heat probe, radio science, robotic arm
 - Based on the purpose and instruments we expect the Geosciences Node to be the lead node for this mission. May we proceed?
- We await reformulation of the NASA Mars Exploration Program and missions that will be assigned to us. This may all become clear in the next few months.

PDS4 Work: Data Migration Plans

- Criteria for selecting PDS3 data sets to migrate:
 - Would PDS4 offer better tools for this data set?
 - Would this data set be a useful model for a new data set?
 - Would this data set provide a useful test of PDS4?
 - Would migrating this data set be good practice for coordinating with other nodes who are migrating data sets from the same mission?
- Possibilities:
 - Odyssey GRS
 - Phoenix TEGA
 - MER-2 (Spirit) APXS, Mössbauer, or RAT
 - Something in a map projection that would be a good test for importing into ODE
- We believe there is no imperative to migrate *all* PDS3 data to PDS4.

PDS4 Work: Plans for Tools and Services

- ODE and AN
 - Explore integration with the Product Registry Service
 - Both local and centralized registries
 - Explore integration of PDS4 format translation tools
- It's hard to plan in detail, not knowing what tools and services will already be provided by EN or by Ames.
 - We would like to provide input on the EN and Ames tool development.
- Tools we think should be PDS-wide, not node-specific:
 - Conversion from PDS4 to popular formats
 - Browser to display images, ASCII tables, binary tables
 - Label "prettifier" to hide the scary XML
 - Convert a PDS4 label to PDS3, to use with legacy tools